

REMARKS

Applicant thanks the Examining Attorney for his attention to the application. All of the claims are rejected. Claims 1-3, 6, 8-10 and 13 are rejected as anticipated by Edlund '227. Claims 1, 2, 5, 7-9, 12 and 14 are rejected as anticipated by Kahn '624. Claims 4 and 11 are rejected as obvious over Kahn. Claims 3, 6, 10 and 13 are rejected as obvious over Kahn in view of Dew '450.

Referring first to Edlund, to the extent that Edlund and the present invention have anything in common, the programmable interface apparatus of claims 1-7 appears to correspond to the proxy server/device server 104 of Edlund. As set forth in claim 1, the programmable interface apparatus for connecting one of a plurality of industrial machines having different data, format and storage configurations to a communications medium for remote monitoring and control corresponds to the device server computer which also includes the proxy server computer since both are designated by the same reference 104.

A particular aspect of the present invention not shown or described by Edlund is the programmability of the claimed interface apparatus. In Edlund, it isn't clear, because Edlund doesn't talk about it, that the proxy server/device server computer 104 is a programmable device that can be configured by configuration information to be connected to a plurality of different industrial machines as claimed by Applicant. Edlund's description of the device is sparse. It is clear, however, that there is no mention in Edlund of memory in the proxy/device server for storing configuration information relating to one of the industrial machines as set forth in claim 1. Without the stored configuration information, Edlund cannot have and does not describe, a data translator responsive to the configuration information receiving data from the interface and transforming the data to a predetermined format.

In fact, it appears that the essence of Edlund is exactly to the contrary. Edlund relates to allowing a multiplicity of users on the Internet to issue commands to an instrument and view the results. Edlund doesn't suggest that a programmable interface for connection to a number of different instruments is desirable and Edlund doesn't describe such an interface. Rather, it appears from Edlund that the interface to the remote devices 106 is customized by a hardware interface program executed by a device server computer. While the hardware interface 124 is desirable in no detail at all, and therefore it is difficult to determine anything about hardware interface 124, it is clear that there is no mention of storing configuration information, no mention of a configurable interface responsive to the stored configuration information for receiving machine data from the machine and sending data to the machine, or of a translator responsive to the stored configuration information for receiving data from the interface and transforming the data to a predetermined format. Likewise, there is no mention of a processor responsive to configuration information for reading data from and writing data to predetermined locations in memory.

In short, while Edlund may relate to a similar problem, it includes no discussion of solving the problem in the manner in which Applicant has claimed, by providing a programmable interface apparatus responsive to stored configuration information for connecting one of a plurality of machines having different data format and storage configurations to a communications medium.

As to claims 2 and 9, the claims require that the configuration information include data transform information. The Examiner refers to column 4, lines 33 through 39, which discusses processing commands, not translating data. There is no mention of data transform information or of a data translator.

As to claims 3 and 10, keep in mind that the claim relates to the programmable interface apparatus. In Edlund, the programmable apparatus is located at the site of the remote device and there is no need for and no disclosure of displaying data to a user. The Examiner's suggestion that a display coupled to client computer 102 is inherent is true but client computer 102 is not the programmable interface, it is simply a web browser. Proxy server/device server 104 is the interface to the remote device.

As to claims 6 and 13, Applicant disagrees that Edlund shows a configuration processor separate from the apparatus and removably connectible to the apparatus. The Examiner doesn't point to where in Edlund he believes this disclosure appears, and in fact, because Edlund does not use configuration information, he does not show or suggest the existence of such an arrangement.

As to Kahn '624, Kahn is closer to Applicant's invention than Edlund, but is still different. In fact, Kahn is an example of the prior art over which Applicant's invention is an improvement. In Kahn, the interface between the control processes or machines are the i/o devices 16 and 18 that are connected to controller 10 via common communication link 14. This is an arrangement very similar to Applicant's arrangement. However, according to the claims, in Applicant's invention the interface devices is programmable while in Kahn they are not. In Kahn, the particular i/o devices are provided by their manufacturer for use with particular processes or machines. As Kahn describes in his examples, one such device 16, is intended for controlling the temperature of tanks of liquid while another device 18 may be a specialized device for agitator control executing a low level motor control routine in response to commands from a central processor.

As described by Applicant, the present invention intends to overcome the need for custom interfaces by providing a single configurable interface that can be used with a large number of different, new or existing, industrial machines to provide for remote monitoring and control of such machines. In Kahn, as shown in Figure 1, templates 33 are provided by the manufacturers of the i/o devices to be loaded into the industrial controller 10. Thus, when a new device is connected to the communication link 14, it can't be controlled by controller 10 until the template 33 is loaded into the controller 10. Where all of the devices are located at one location, such as a single factory, this isn't a significant problem. Applicant's approach is more versatile. As set forth in claim 1, the configuration information is loaded into the programmable interface (corresponding to Kahn's i/o devices) not into the central controller. To the central controller, all of the programmable interfaces (i/o devices) of Applicant's arrangement look the same. This allows control of a network of heterogeneous devices by programming the interfaces with configuration information rather than programming the central controller as Kahn does. The result obtained is similar but the approach is different. In accordance with Applicant's invention, a common interface device can be produced inexpensively in large numbers for connection to a collection of different industrial machines. The programmable interface devices are configured by loading the configuration information into memory in the interfaces, not into the central computer.

As to claims 2 and 9, the Examiner points to column 2, lines 48-53. This section of Kahn, however, only refers to data structures, not data transform information. If Kahn mentions data transform information, Applicant cannot find it.

As to claims 5 and 12, the Examiner suggests that the memory storing configuration information is removable memory. He refers to disks 33 in figure 1. While disks may be removable memory, they are memory of the central controller, not of the programmable interface as already discussed.

As to claims 7 and 14, Applicant believes that the templates of Kahn relate to the i/o controllers 16 and 18, not to the machines. In fact, it is significant that the machines are not even shown in Kahn. Clearly, the configuration information relates to the controllers rather than the machines and this makes sense because Kahn's controllers aren't programmable and therefore it isn't necessary for the configuration information to relate to the machine, the i/o devices are known quantities, having a predetermined configuration which never changes.

Claims 4 and 11 are rejected as obvious over Kahn. The Examiner acknowledges that Kahn does not specifically disclose the use of non-volatile memory for storing the configuration information. What the Examiner doesn't mention is that the memory that stores the configuration information is not in the programmable interface. Therefore, even if it would be obvious to store the configuration information in non-volatile memory, claims 4 and 11 are not obvious because Kahn doesn't teach storing the configuration information in the programmable interface at all.

Finally, claims 3, 6, 10 and 13 are rejected as unpatentable over Kahn in view of Dew '450. As to claims 3 and 10, while Kahn shows a display, the display is not attached to the programmable interface but to the controlling PC.

As to claims 6 and 13, it doesn't appear that Dew relates at all to Applicant's invention, that is Dew appears to be concerned with controlling welding equipment of a homogeneous nature, not a plurality of industrial machines having different data format and storage configurations. At most, the welders have timers to control the particular welds but all appear to be similar. Therefore, while Dew may be able to adjust the timing, Dew otherwise has nothing in common with applicant's invention or with Kahn. Remember that the configuration in Applicant's claimed invention relates to configuration of the interface, not configuration of the machine. In Dew, the timing information that is written by the PC 74 into the timers 1 through 31 relates to timing of the welding equipment, not timing of the interface.

Applicant respectfully submits that for the foregoing reasons, the claimed invention is neither anticipated by nor obvious over any of the references of record and accordingly that the rejection should be reconsidered and upon reconsideration withdrawn and the application passed on to issue.

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Respectfully submitted,

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